ATTACHED ARE:

1) A transcribed copy of BAA 01-11 as it appeared in the *Commerce Business Daily* (CBD) of October 13, 2000 and

2) the BAA 01-11 Proposer Information Pamphlet.

Due to the possibility of transcription errors, the official CBD announcement takes precedence over this transcription in any disagreement between the two. The transcription is provided for your convenience only.

ADMINISTRATIVE NOTE:
NEW REQUIREMENTS/PROCEDURES

QUANTUM INFORMATION SCIENCE AND TECHNOLOGY (QuIST), SOL BAA 01-11, DUE: 01/22/01; POCs FOR UNDERLYING INFORMATION TECHNOLOGY: DR. MICHAEL FOSTER, DARPA/ITO AND DR. DENNIS HEALY, DARPA/DSO; POC FOR SCALABLE QUANTUM COMPONENT TECHNOLOGY: DR. STUART WOLF, DARPA/DSO; FAX: (703) 522-7161

QuIST PROGRAM OBJECTIVE:

The goal of the DARPA Quantum Information Science and Technology (QuIST) program is to demonstrate advances required for practical use of quantum logic and information in computing, communications, and other applications. Specific areas of interest include:

(1) fault-tolerant algorithms and architectures,
(2) formulation of new algorithms and protocols for ultra-secure communications, ultra-precise metrology, information-bandwidth enhancements,
(3) the limits of quantum computation for speedups over classical computation, and
(4) computational applications for which quantum computation offers significant advantage over known classical equivalents.

Concurrently with these fundamental advances, QuIST seeks to develop the component technology for quantum computing and secure quantum communication including the development of robust megahertz rate single photon sources and detectors, practical implementations of single and multiple quantum bit logic gates, quantum memory, and systems level constructs such as quantum repeaters. The program is aimed at developing theory, hardware, and integrated demonstrations that may include scalable assemblies of quantum logic and memory, quantum teleportation-based communication, ultra-precise clock synchronization, communication of quantum information over large distances, and network backbones based on coherent optical and quantum techniques.

TECHNICAL TOPIC AREAS:

QuIST seeks innovative research both in underlying information technology and in scalable component technology for quantum information systems. The goal is to demonstrate the potential for practical use of quantum effects in communication and computation. DARPA is primarily interested in projects that offer simultaneous advances in underlying ideas, algorithms, architectures, and scalable components.

1. Underlying Information Technology

This part of the QuIST program seeks advances in algorithms, protocols, and their implementations that will lead to practical quantum computing and communication.

In support of these goals QuIST will concentrate on the following core areas of underlying quantum information science and technology:

(1) Quantum error correction and fault tolerance techniques that reduce system overheads while raising error thresholds;
(2) Coherent optical and quantum techniques for provable security of network backbones;
(3) Tools for developing, simulating, and validating quantum algorithms and protocols;
(4) Limits of quantum computation and communication for improvements over classical techniques;
(5) New algorithms and protocols for computation and communication;
(6) Optimization techniques and tools for implementing algorithms within the achievable decoherence and entanglement constraints of specific devices and architectures;
(7) Tools for modeling and engineering solid-state and other scalable components of quantum information systems;
(8) New applications of quantum information science and technology.

2. Scalable Quantum Component Technology

This experimental part of the QuIST program seeks efforts that will demonstrate quantum technology of increasing complexity by developing and integrating the components necessary for these demonstrations. These technology development efforts should be integrated with the appropriate theoretical and experimental underpinnings as appropriate.

DARPA seeks to fund projects that will focus on the appropriate theory, component development and integration to carry out a successful demonstration in one or more of these areas, or in other areas of convincingly clear interest to the DoD.

(1) Implementations of quantum bits (qubits) using two-level quantum systems that can ultimately scale to large numbers of qubits (>1000);
(2) Demonstrations of single qubit and multiple qubit gates compatible with

scalable qubit implementations;
(3) Demonstrations of error control at high error rates on scalable qubit implementation;
(4) Demonstrations of quantum security protocols at high data rates (Megabits/second or higher)
(5) Qubit memories compatible with scalable qubit implementations;
(6) Robust sources and detectors for polarized single photons;
(7) Sources for entangled Einstein, Podelsky, Rosen (EPR) pairs;
(8) Network repeaters for qubits.

PROGRAM SCOPE:

The Quantum Information Science and Technology program is a 5-year (60 month) program (FY01-05) with a total budget of about $100M. Research funded under this BAA will be executed over FY01-05.

Proposed research should investigate innovative approaches and techniques that lead to or enable revolutionary advances in the state-of-the-art. Proposals are not limited to the specific technical topic areas listed above and alternative visions will be considered. However, proposals should be for research that substantially contributes towards the specific interests of DARPA as stated in the PIP. Research should result in prototype hardware and/or software demonstrating integrated concepts and approaches. Specifically excluded is research that primarily results in evolutionary improvement to the existing state of practice or focuses on a specific system or solution. Integrated solution sets embodying significant technological advances are strongly encouraged over narrowly defined research endeavors. We encourage proposals involving other research groups, industrial cooperation, or cost sharing.

TEAM-FORMING MEETING:

DARPA is sponsoring a team-forming workshop on Quantum Information Science and Technology. This workshop will be held October 23 - 24, 2000, at the Greenbelt Marriott Hotel in Greenbelt, Maryland. Attendance at the workshop is OPTIONAL, BUT IS HIGHLY RECOMMENDED for all potential bidders. Please access the QuIST website for workshop details including registration and abstract submission. The website can be accessed at:

http://www.sainc.com/conference/View/index.asp?MeetingID=131

GENERAL INFORMATION:

The Defense Advanced Research Projects Agency/Information Technology Office (DARPA/ITO) and Defense Sciences Office (DARPA/DSO) requires completion of a **Broad Agency Announcement (BAA) Cover Sheet Submission** for each Abstract and Proposal, by accessing the URL below:

http://www.dyncorp-is.com/BAA/index.asp?BAAid=01-11

After finalizing the **BAA Cover Sheet Submission**, the proposer must submit the **BAA Confirmation Sheet** that will automatically appear on the web page. Each proposer is responsible for printing the BAA Confirmation Sheet and submitting it attached to the "original" and each designated number of copies. The Confirmation Sheet should be the first page of your Abstract or Proposal. Failure to comply with these submission procedures may result in the submission not being evaluated.

Detailed information and instructions are outlined within the Proposer Information Pamphlet (PIP).

ABSTRACT FORMAT:

In order to minimize unnecessary effort in proposal preparation and review, proposers are strongly encouraged to submit brief proposal abstracts in advance of full proposals. An original and **4** copies of the proposal abstract and **7** electronic copies (i.e., **7** separate disks) of the abstract (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format each on a 3.5-inch floppy disk or a 100 MB Iomega Zip disk) should be submitted. Each disk must be clearly labeled with BAA 01-11, proposer organization, proposal title (short title recommended) and Copy ___ of **7**. The proposal abstract (original and designated number of hard and electronic copies) must be submitted to DARPA, ATTN: BAA 01-11, 3701 N. Fairfax Drive, Arlington, VA 22203-1714, in time to reach DARPA by 4:00 PM (ET) **Wednesday, November 15, 2000**, to guarantee review. Upon review, DARPA will make a recommendation to offerors either encouraging or discouraging submission of full proposals.

DARPA will attempt to review proposal abstracts within 30 days after receipt and will make a recommendation encouraging or discouraging formal proposal submissions. Proposal abstracts will be reviewed as they are received. Early submissions are strongly encouraged. Regardless of the recommendation, the decision to propose is the responsibility of the proposer. All submitted proposals will be fully reviewed, regardless of the disposition of the proposal abstract**.**

PROPOSAL FORMAT:

Proposers must submit an original and **4** copies of the full proposal and **7** electronic copies (i.e., **7** separate disks) of the full proposal (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format each on a 3.5-inch floppy disk or a 100 MB Iomega Zip disk) should be submitted. Each disk must be clearly labeled with BAA 01-11, proposer organization, proposal title (short title recommended) and Copy ___ of **7**. The full proposal (original and designated number of hard and electronic copies) must be submitted in time to reach DARPA by 4:00 PM (ET) **Monday, January 22, 2001,** in order to guarantee review. Proposers must obtain the BAA 01-11 Proposer Information Pamphlet (PIP), which provides further information on the areas of interest, submission, evaluation, funding processes, proposal abstracts, and full proposal formats. This

pamphlet may be obtained by fax or electronic mail; send request to the administrative contact address given below, or at URL address http://www.darpa.mil/ito/Solicitations.html. Proposals not meeting the format described in the pamphlet may not be reviewed. This Commerce Business Daily (CBD) notice, in conjunction with the BAA 01-11 PIP and all references, constitutes the total BAA. No additional information is available, nor will a formal RFP or other solicitation regarding this announcement be issued. Requests for same will be disregarded.

The Government reserves the right to select for award all, some, or none of the proposals received.

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

Evaluation of proposals will be accomplished through a scientific review of each proposal, using the following criteria which are listed in descending order of relative importance:

(1) Overall Scientific and Technical Merit: The overall scientific and technical merit must be clearly identifiable. The technical concept should be clearly defined and developed. Emphasis should be placed on the technical value of the development and experimentation approach. Proposed efforts should apply new or existing technology in a new way such as is advantageous to the objectives.

(2) Potential Contribution and Relevance to DARPA Mission: The offeror must clearly address how the proposed effort will meet the goals of the program.

(3) Offeror's Capabilities and Related Experience: The qualifications, capabilities, and demonstrated achievements of the proposed principals and other key personnel for the primary and subcontractor organizations must be clearly shown.

(4) Plans and Capability to Accomplish Technology Transition: The offeror should clearly indicate how successful scientific developments from the proposed research program would potentially enable significant improvements in technologies of interest to the Department of Defense. A description of the steps likely to be required to create a demonstrable technological benefit deriving from the research results should be clearly indicated, whether or not such a demonstration is actually within the scope of the proposed research program. This description should indicate the mechanisms and strategies for transferring results of the research program to appropriate communities for further development, testing, and application.

(5) Cost Realism: The overall estimated cost to accomplish the effort should be clearly shown as well as the substantiation of the costs for the technical complexity described. Evaluation will consider the value to Government of the research and the extent to which the proposed management plan will effectively allocate resources to achieve the capabilities proposed.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit a proposal abstract or proposal to this BAA, must be received at one of the administrative addresses below by 4:00 PM (ET) **Tuesday, January 16, 2001,** to ensure processing; e-mail or fax is preferred. DARPA intends to use electronic mail and fax for some of the correspondence regarding BAA 01-11. Proposals and proposal abstracts **MUST NOT** be submitted by fax **or e-mail**; any so sent will be disregarded.

The administrative addresses for this BAA are:

Fax: 703-522-7161 Addressed to: DARPA, BAA 01-11
Electronic Mail: baa01-11@darpa.mil
Electronic File Retrieval: http://www.darpa.mil/ito/Solicitations.html

Mail to: DARPA
ATTN: BAA 01-11
3701 N. Fairfax Drive
Arlington, VA 22203-1714

ADMINISTRATIVE NOTE:
NEW REQUIREMENTS/PROCEDURES

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BAA 01-11 PROPOSER INFORMATION PAMPHLET

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The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first in the *Commerce Business Daily (CBD)*, published by the U.S. Government, Department of Commerce. The following information is for those wishing to respond to the Broad Agency Announcement.

QUANTUM INFORMATION SCIENCE AND TECHNOLOGY (QuIST), SOL BAA 01-11, DUE: 01/22/01; POCs FOR UNDERLYING INFORMATION TECHNOLOGY: DR. MICHAEL FOSTER, DARPA/ITO AND DR. DENNIS HEALY, DARPA/DSO; POC FOR SCALABLE QUANTUM COMPONENT TECHNOLOGY: DR. STUART WOLF, DARPA/DSO; FAX: (703) 522-7161

QuIST PROGRAM OBJECTIVE:

The goal of the DARPA Quantum Information Science and Technology (QuIST) program is to demonstrate advances required for practical use of quantum logic and information in computing, communications, and other applications. Specific areas of interest include:

1. fault-tolerant algorithms and architectures,
2. formulation of new algorithms and protocols for ultra-secure communications, ultra-precise metrology, information-bandwidth enhancements,
3. the limits of quantum computation for speedups over classical computation, and
4. computational applications for which quantum computation offers significant advantage over known classical equivalents.

Concurrently with these fundamental advances, QuIST seeks to develop the component technology for quantum computing and secure quantum communication including the development of robust megahertz rate single photon sources and detectors, practical implementations of single and multiple quantum bit logic gates, quantum memory, and systems level constructs such as quantum repeaters. The program is aimed at developing theory, hardware, and integrated demonstrations that may include scalable assemblies of quantum logic and memory, quantum teleportation-based communication, ultra-precise clock synchronization, communication of quantum information over large distances, and network backbones based on coherent optical and quantum techniques.

TECHNICAL TOPIC AREAS:

QuIST seeks innovative research both in underlying information technology and in scalable component technology for quantum information systems. The goal is to demonstrate the potential for practical use of quantum effects in communication and computation. DARPA is primarily interested in projects that offer simultaneous advances in underlying ideas, algorithms, architectures, and scalable components.

1. Underlying Information Technology

This part of the QuIST program seeks advances in algorithms, protocols, and their implementations that will lead to practical quantum computing and communication. Theoretical approaches that offer performance or security improvements over classical techniques are of primary interest. These might lead to algorithms that extend the reach of quantum computation to new application areas, or protocols that mix classical and quantum information to increase rates of transfer or to provably increase security. Emphasis will be placed on quantum information storage and on quantum techniques for provably secure communication and authentication over a shared network backbone.

Quantum information adds additional complexities to developing and implementing algorithms and protocols. DoD seeks to manage these complexities through new approaches to specifying quantum information systems, validating their properties, simulating their operation using quantum and classical techniques, and predicting the performance of implementations. A primary barrier to practical implementations is the error introduced by decoherence, so new techniques for error control and experimental implementations of new or existing error control techniques are of interest to DoD.

Specific implementations of quantum bits may further constrain practical application of quantum information technology. Examples are limits on the number of operations that can be performed before decoherence or limits on the degree of entanglement between quantum bits (qubits). We seek techniques for overcoming these additional constraints, such as staged execution or error correction, along with methods and tools for transforming algorithms and protocols to use these techniques.

While quantum information appears to offer advantages in some applications such as factoring large integers or secure key distribution, there is yet no complete characterization of cases in which advantages are possible. In many critical areas of national security, limits on possible improvements are as important as achieving those improvements. New models of quantum computation, bounds on resources, and limits on the use of quantum systems in efficient and secure communication are therefore of interest to DARPA.

QuIST seeks new areas that may contribute to or benefit from quantum information technology. These may include new applications of quantum computation or communication.

They may also include applications such as metrology in which computation and communication are minimal, but in which entanglement and other quantum phenomena can enhance classical information.

In support of these goals QuIST will concentrate on the following core areas of underlying quantum information science and technology. The point of contact for further information on core areas 1-4 is Dr. Michael Foster, DARPA/ITO; for core areas 5-8 the point of contact is Dr. Dennis Healy, DARPA/DSO. The core areas are:

(1) Quantum error correction and fault tolerance techniques that reduce system overheads while raising error thresholds;
(2) Coherent optical and quantum techniques for provable security of network backbones;
(3) Tools for developing, simulating, and validating quantum algorithms and protocols;
(4) Limits of quantum computation and communication for improvements over classical techniques;
(5) New algorithms and protocols for computation and communication;
(6) Optimization techniques and tools for implementing algorithms within the achievable decoherence and entanglement constraints of specific devices and architectures;
(7) Tools for modeling and engineering solid-state and other scalable components of quantum information systems;
(8) New applications of quantum information science and technology.

2. Scalable Quantum Component Technology

This experimental part of the QuIST program seeks efforts that will demonstrate quantum technology of increasing complexity by developing and integrating the components necessary for these demonstrations. These technology development efforts should be integrated with the appropriate theoretical and experimental underpinnings as appropriate. DARPA seeks proposals that will develop or demonstrate one or more of the following technologies of interest to the DoD: (1) scalable assemblies of quantum logic and memory, (2) quantum teleportation-based communication, (3) ultra-precise clock synchronization and (4) ultra-secure communication over large distances (100km). Some of the specific areas that may need to be developed in order to successfully demonstrate Quantum Technology are listed below. DARPA seeks to fund projects that will focus on the appropriate theory, component development and integration to carry out a successful demonstration in one or more of these areas, or in other areas of convincingly clear interest to the DoD.

The point of contact for further information on Scalable Component Technology is Dr. Stuart Wolf, DARPA/DSO. Here are the specific core technology developments that form the basis of the experimental part of QuIST:

(1) Implementations of quantum bits using two-level quantum systems that can

ultimately scale to large numbers of qubits (>1000);
(2) Demonstrations of single qubit and multiple qubit gates compatible with scalable qubit implementations;
(3) Demonstrations of error control at high error rates on scalable qubit implementation;
(4) Demonstrations of quantum security protocols at high data rates (Megabits/second or higher)
(5) Qubit memories compatible with scalable qubit implementations;
(5) Robust sources and detectors for polarized single photons;
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(7) Network repeaters for qubits.

PROGRAM SCOPE:

The Quantum Information Science and Technology program is a 5-year (60 month) program (FY01-05) with a total budget of about $100M. Research funded under this BAA will be executed over FY01-05.

Proposed research should investigate innovative approaches and techniques that lead to or enable revolutionary advances in the state-of-the-art. Proposals are not limited to the specific technical topic areas listed above and alternative visions will be considered. However, proposals should be for research that substantially contributes towards the specific interests of DARPA as stated earlier. Research should result in prototype hardware and/or software demonstrating integrated concepts and approaches. Specifically excluded is research that primarily results in evolutionary improvement to the existing state of practice or focuses on a specific system or solution. Integrated solution sets embodying significant technological advances are strongly encouraged over narrowly defined research endeavors. We encourage proposals involving other research groups, industrial cooperation, or cost sharing.

SUBMISSION PROCESS:

The Defense Advanced Research Projects Agency/Information Technology Office (DARPA/ITO) and Defense Sciences Office (DARPA/DSO) require completion of a **Broad Agency Announcement (BAA) Cover Sheet Submission** for each Abstract and Proposal, by accessing the URL below:

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After finalizing the **BAA Cover Sheet Submission**, the proposer must submit the **BAA Confirmation Sheet** that will automatically appear on the web page. Each proposer is responsible for printing the BAA Confirmation Sheet and submitting it attached to the "original" and each of the copies. The Confirmation Sheet should be the first page of your Abstract or Proposal. Failure to comply with these submission procedures may result in the submission not being evaluated.

ABSTRACT SUBMISSION:

Proposers are strongly encouraged to submit a proposal abstract in advance of actual proposals. This procedure is intended to minimize unnecessary effort in proposal preparation and review. An original and **4** copies of the proposal abstract, and **7** electronic copies (i.e., **7** separate disks) of the proposal abstract (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format each on a 3.5-inch floppy disk or a 100 MB Iomega Zip disk) should be submitted. Each disk must be clearly labeled with BAA 01-11, proposer organization, proposal abstract title (short title recommended) and Copy ___ of **7**. The full proposal abstract (original and designated number of hard and electronic copies) must be submitted to DARPA, ATTN: BAA 01-11, 3701 N. Fairfax Drive, Arlington, VA 22203-1714, in time to reach DARPA by 4:00 PM (ET) **Wednesday, November 15, 2000**, in order to guarantee review.

DARPA will attempt to review proposal abstracts within 30 days after receipt and will make a recommendation encouraging or discouraging formal proposal submissions. Proposal abstracts will be reviewed as they are received. Early submissions are strongly encouraged. Regardless of the recommendation, the decision to propose is the responsibility of the proposer. All submitted proposals will be fully reviewed, regardless of the disposition of the proposal abstract.

PROPOSAL SUBMISSION:

An original and **4** copies of the full proposal, and **7** electronic copies (i.e., **7** separate disks) of the full proposal (in Microsoft Word '97 for IBM-compatible, **PDF, Postscript, or** ASCII format each on a 3.5-inch floppy disk or a 100 MB Iomega Zip disk) should be submitted. Each disk must be clearly labeled with BAA 01-11, proposer organization, proposal title (short title recommended) and Copy ___ of **7**. The full proposal (original and designated number of hard and electronic copies) must be submitted to the administrative address for this BAA in time to reach DARPA by 4:00 PM (ET) **Monday, January 22, 2001**, in order to be considered. DARPA will acknowledge receipt of submissions within 10 working days and assign control numbers that should be used in all further correspondence regarding proposals.

The typical proposal should express a consolidated effort in support of one or more technical topic areas. Disjointed efforts should not be included in a single proposal.

Restrictive notices notwithstanding, full proposals and abstracts may be handled, for administrative purposes only, by a support contractor. This support contractor is prohibited from competition in DARPA technical research and is bound by appropriate non-disclosure requirements.

All abstracts and proposals will be reviewed by Government officials only. Input on purely technical aspects may be solicited by DARPA from non-Government consultants/experts who are bound by appropriate non-disclosure requirements. Non-

Government technical consultants will not have access to submissions that are labeled by the offerors as "GOVERNMENT ONLY."

EVALUATION AND FUNDING PROCESSES:

Proposals will not be evaluated against each other, since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described in PROPOSAL FORMAT Section I and Section II (see below). Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Evaluation of proposals will be accomplished through a scientific review of each proposal using the following criteria, which are listed in descending order of relative importance:

(1) Overall Scientific and Technical Merit: The overall scientific and technical merit must be clearly identifiable. The technical concept should be clearly defined and developed. Emphasis should be placed on the technical value of the development and experimentation approach. Proposed efforts should apply new or existing technology in a new way such as is advantageous to the objectives.

(2) Potential Contribution and Relevance to DARPA Mission: The offeror must clearly address how the proposed effort will meet the goals of the program.

(3) Offeror's Capabilities and Related Experience: The qualifications, capabilities, and demonstrated achievements of the proposed principals and other key personnel for the primary and subcontractor organizations must be clearly shown.

(4) Plans and Capability to Accomplish Technology Transition: The offeror should clearly indicate how successful scientific developments from the proposed research program would potentially enable significant improvements in technologies of interest to the Department of Defense. A description of the steps likely to be required to create a demonstrable technological benefit deriving from the research results should be clearly indicated, whether or not such a demonstration is actually within the scope of the proposed research program. This description should indicate the mechanisms and strategies for transferring results of the research program to appropriate communities for further development, testing, and application.

(5) Cost Realism: The overall estimated cost to accomplish the effort should be clearly shown as well as the substantiation of the costs for the technical complexity described. Evaluation will consider the value to Government of the research and the extent to which the proposed management plan will effectively allocate resources to achieve the capabilities proposed.

FAR 37.203 (d) regulates the use of non-government personnel.

As soon as the proposal evaluation is completed, the proposer will be notified of selectability or non-selectability. Selectable proposals will be considered for funding. (Copies of non-selectable proposals will be retained for filing purposes.) Not all proposals deemed selectable will be funded. Decisions to fund selectable proposals will be based on funds available as well as the overall merit and impact of the proposed research on QuIST synthesis. In addition, proposal funding decisions may be based on research efforts most relevant to program goals. DARPA may retain some selectable proposals for a period of up to one year, in order to reconsider those proposals for funding. Submitters of those retained proposals will receive notification to that effect.

The Government reserves the right to select for award all, some, or none of the proposals received. Proposals identified for funding may result in a contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. If warranted, portions of resulting awards may be segregated into pre-priced options.

GENERAL INFORMATION:

Proposals not meeting the format described in this pamphlet may not be reviewed. Proposals and proposal abstracts **MUST NOT** be submitted by fax **or e-mail**; any so sent will be disregarded. The *Commerce Business Daily* notice, in conjunction with this Proposer Information Pamphlet (PIP) and all references, constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or other solicitation regarding this announcement be issued. Requests for same will be disregarded. All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

PROPOSAL ABSTRACT FORMAT:

Proposal abstracts are encouraged in advance of full proposals in order to provide potential offerors with a rapid response and to minimize unnecessary effort. The abstract submission should be clearly marked "PROPOSAL ABSTRACT" and in addition to the confirmation sheet should include the Proposer’s cover sheet and a technical section.

The Proposer’s cover sheet should include: (1) BAA number; (2) Technical topic area; (3) Proposal title; (4) Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (5) Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (6) Summary of the costs of the proposed research, including total

base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant; and (7) Contractor's type of business, selected from among the following categories: "WOMEN-OWNED LARGE BUSINESS," "OTHER LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS [*Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other*]," "WOMEN-OWNED SMALL BUSINESS," "OTHER SMALL BUSINESS," "HBCU," "MI," "OTHER EDUCATIONAL," "OTHER NONPROFIT", or "FOREIGN CONCERN/ENTITY."

The technical section of the abstract should include the following: A. {1 page} Innovative claims for the proposed research. This page is the centerpiece of the abstract and should succinctly describe the unique proposed contribution; and B. {4 pages} Technical rationale, technical approach and constructive plan for accomplishment of technical goals in support of innovative claims and deliverable products. Include comparison with other ongoing research indicating advantages and disadvantages of the proposed effort.

The total length of the abstract should not exceed six pages including the cover sheet. A “page” is 8 ½ by 11 inches with type not smaller than 12 point with 1 inch margins and with text on one side only. This is the only format that will be accepted. No formal transmittal letter is required.

PROPOSAL FORMAT:

Proposals shall include the following sections, each starting on a new page (where a "page" is 8-1/2 by 11 inches with type not smaller than 12 point) and with text on one side only. The submission of other supporting materials along with the proposal is strongly discouraged. Sections I and II of the proposal shall not exceed 40 pages. Maximum page lengths for each section are shown in braces {} below.

Section I. Administrative

{1} Proposer’s Cover Page including: (1) BAA number; (2) Technical topic area; (3) Proposal title; (4) Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (5) Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address; (6) Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant; and (7) Contractor's type of business, selected from among the following categories: "WOMEN-OWNED LARGE BUSINESS," "OTHER LARGE BUSINESS," "SMALL DISADVANTAGED BUSINESS [*Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other*]," "WOMEN-OWNED SMALL BUSINESS," "OTHER SMALL BUSINESS,"

"HBCU," "MI," "OTHER EDUCATIONAL," "OTHER NONPROFIT", or "FOREIGN CONCERN/ENTITY."

Section II. Detailed Proposal Information

This section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that makes it desirable to DARPA.

A. {1} Innovative claims for the proposed research. This page is the centerpiece of the proposal and should succinctly describe the unique proposed contribution.

B. {1} A "Proposal Roadmap" which shall address the following nine areas that must be addressed in the proposal. For each area, the roadmap will contain a summary statement (or "sound bite") for that area and identify the page number(s) where the issue is addressed in detail. It is important to make these statements as explicit and informative as possible. The areas are:

    1. Main goal of the work (stated in terms of new, operational capabilities for assuring that critical information is available to key users).

    2. Tangible benefits to end users (i.e., benefits of the capabilities afforded if the proposed technology is successful).

    3. Critical technical barriers (i.e., technical limitations that have, in the past, prevented achieving the proposed results).

    4. Main elements of the proposed approach.

    5. Specific basis for confidence that the proposed approach will overcome the technical barriers. ("We have a good team and good technology" is not a useful statement.)

    6. Nature of expected results (unique/novel/critical capabilities that will result from this effort and form in which they will be defined).

    7. Criteria for evaluating progress and capabilities.

    8. Cost of the proposed effort for each contract year.

C. {17} Technical rationale, technical approach and constructive plan for accomplishment of technical goals in support of innovative claims and deliverables.

D. {2} Deliverables associated with the proposed research. Include in this section all proprietary claims to results, prototypes, or systems supporting and/or necessary for

the use of the research, results, and/or prototype. If there are no proprietary claims, this should be stated. The offeror must submit a separate list of all technical data or computer software that will be furnished to the Government with other than unlimited rights (see DFARS 227.)

E. {3} Statement of Work (SOW) written in plain English, outlining the scope of the effort and citing specific tasks to be performed and specific contractor requirements. Subcontractor efforts should be identified and broken out separately.

F. {1} A graphic illustration of the milestones and schedule, including but not limited to, a multi-phase development plan which demonstrates a clear understanding of the proposed research; and a plan for periodic and increasingly robust experiments over the project life that will show applicability to the overall program concept.

G. {2} Technology Transfer. This section should describe how the scientific investigations under the proposed project may result in a path to a demonstrable technology.

H. {3} Comparison with other ongoing research indicating advantages and disadvantages of the proposed effort including other related government contracts.

I. {2} List of key personnel, concise summary of their qualifications, and discussion of proposer's previous accomplishments and work in this or closely related research areas. Indicate the level of effort to be expended by each person during each contract year and other (current and proposed) major sources of support for them and/or commitments of their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity.

J. {1} Description of the facilities that would be used for the proposed effort. If any portion of the research is predicated upon the use of Government Owned Resources of any type, the offeror shall specifically identify the property or resource required, the date the property or resource is required, the duration of the requirement, the source from which the resource is required, if known, and the impact on the research if the resource cannot be provided. If no Government Furnished Property is required, the proposal shall so state.

J. {1} Experimentation and Integration Plans. Offerors shall describe how their results could be integrated with solutions that other contractors are currently developing or are likely to develop. In addition, offerors should identify experiments to test the hypotheses of their approaches and be willing to work with other contractors in order to develop joint experiments in a common testbed environment. Offerors should expect to participate in teams and workshops to provide specific technical background information to DARPA, attend semi-annual Principal Investigator (PI) meetings, and participate in numerous other coordination meetings via teleconference or Video Teleconference (VTC). Funding to support these various group experimentation efforts should be included in technology project bids.

K. {5} Cost by task, with breakdown into accounting categories and equipment for the entire contract and for each contract year. Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as contract options with separate cost estimates for each. Details of any cost sharing should also be included. Subcontractor efforts should be identified and broken out separately.

M. Contractors requiring the purchase of **Information Technology (IT) resources using Government funds MUST** attach to the submitted proposals the following information:

1. A letter on Corporate letterhead signed by a senior corporate official and addressed to DARPA, stating that you either cannot or will not provide the information technology (IT) resources necessary to conduct the said research.

2. An explanation of the method of competitive acquisition or a sole source justification, as appropriate, for each IT resource item.

3. If the resource is leased, a lease purchase analysis clearly showing the reason for the lease decision.

4. The cost for each IT resource item.

IMPORTANT NOTE: IF THE CONTRACTOR DOES NOT COMPLY WITH THE ABOVE STATED REQUIREMENTS, THE PROPOSAL MAY BE REJECTED.

Awards made under this BAA may be subject to the provisions of the Federal Acquisition Regulation (FAR) Subpart 9.5, Organizational Conflict of Interest. All affirmations must state which office(s) the offeror supports, and identify the prime contract number. Affirmations should be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest, as that term is defined in FAR 9.501, must be disclosed in Section II, H of the proposal, organized by task and year. This disclosure shall include a description of the action the Contractor has taken, or proposes to take, to avoid, neutralize, or mitigate such conflict.

Section III. Additional Information

A bibliography of relevant technical papers and research notes (published and unpublished) that document the technical ideas, upon which the proposal is based, may be included in the proposal submission. Provide one set for the original full proposal and one set for each of the **4** full proposal hard copies. Please note: The materials described in this section, and submitted with the proposal, will be considered for the reviewer's convenience only and not considered as part of the proposal for evaluation purposes.

The administrative addresses for this BAA are:

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